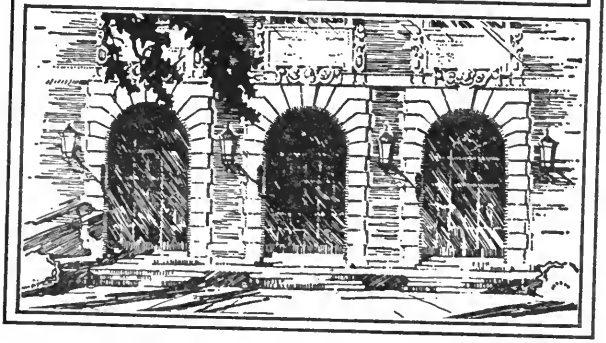

The Use of Sago in New Guinea

BY

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POUNDING OUT SAGO PITH. THE HARD OUTER PORTION OF THE TRUNK HAS BEEN REMOVED ON TOP. SISSANO, NORTH COAST.

PLACING THE SAGO MUSH ON A BANANA-LEAF PLATE. THE STIRRING PADDLE, COCONUT DIPPER, AND HOT-WATER POT ARE SEEN AT THE LEFT. SISSANO, NORTH COAST.

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The obtaining of a good and sufficient supply of food in New Guinea is not such a simple and easy matter as the popular impression of South Sea life might lead one to expect. Nearly all the food of the people is vegetable; and the clearing of the forest for their gardens, the preparation of the soil, the planting and the protection of the growing crops against rapidly growing weeds and wild animals, chiefly pigs, demand much hard work and constant vigilance. Adding to this the fact that their only tools and implements are of stone and wood, and that all the work is hand-work, as there are no domestic animals to help, one is forced to admit that the New Guinea native is no exception to the rule that "in the sweat of thy face shalt thou eat bread," or whatever he can get to take its place.

There is still, however, a certain amount of food obtained from wild plants, and among these the sago palm is by far the most important. The palms from which most of the sago is obtained belong to the genus *Metroxylon*, and grow in low and swampy regions, such as the valleys and deltas of many New Guinea rivers. Many tribes living in such regions subsist largely on sago and fish, and even people from some distance may come thither, either to trade their own products for sago with the local inhabitants, or, in uninhabited districts, to manufacture it for themselves. Sago, as prepared in New Guinea, is not the pearl sago of commerce, which is frequently only potato starch

anyway, but is a fine meal of almost pure starch, which on drying hardens into a more or less solid mass. This is broken up and pulverized before cooking.

This starch is the reserve food supply of the palm, which it stores up in its trunk during many years of growth, for the consummation of its purpose in life,—the production of flower, fruit, and seed, which it does only once, and then dies, like the century plant. It is necessary, therefore, in order to get the maximum amount from each palm, to cut it down just before it puts forth its flower or fruit stalks, as these grow very rapidly, and soon use up the reserve supply of starch which has been accumulated during all the years of slow and steady growth.

The trunk or stem of the sago palm, when full grown, is from 20 to 25 feet high, with a diameter of from 1½ to 2 feet. There is a hard outer rind or shell about an inch or less in thickness, while the whole inner portion is filled with a soft white substance about the consistency of cheese, with numerous coarse, rather brittle fibers running through it. These have to be removed before it can be used, so the natives mash it up and wash out the starch. This process is much the same throughout the island, though the details vary somewhat in different regions. As the palms grow out in the swamps, a suitable tree must first be found. This is then cut down, and the trunk may be either cut into sections, and these floated to a regular working-place near the village, or the washing out may be done on the spot, as the places where they grow are usually above water and fairly dry during the dry season. In either case the hard outer rind is split open with heavy, pointed stakes, and a portion pried off, so the pith is exposed. This is then pounded and mashed with a peculiar hammer made especially for this purpose, having at

the lower end a cup-shaped depression with sharp edges. This cuts out the pith and mashes it at the same time. The cutting head may be of hard wood, bamboo, or stone, according to the locality.

The mashed pith is thrown into baskets and carried to the washing trough, which is made out of the base of a sago-leaf stem. As the base of the leaf stem clasps the trunk, it is quite large, and the stem for a considerable distance is hollowed out on one side, and so makes an excellent trough. The portion used is usually from 8 to 10 feet long, and is set up on stakes so that one end, usually the larger, is lower than the other. In the trough, near the lower end, is fastened the strainer, usually made of a piece of the fibrous leaf sheath of the coconut tree, though a closely woven bag sometimes serves for this purpose. The mashed pith is dumped in the trough and water poured over it to wash out the starch. During this process it is worked with the hands or pounded with a stick to break it up still more, so all the starch can be removed. The water is obtained from a hole near-by, and is dipped up with a dipper of coconut shell on a long handle; or it may be brought from the near-by river in a water bucket, made of a leaf or bud sheath. This same material forms the shallow basin into which the starchy water runs, and where it stands till the starch settles to the bottom. Near the mouth of the Sepik River a basket is used as a strainer without any trough. The basket is then set on an open platform, with the settling pan underneath. The water is poured into the basket, which is worked and squeezed by hand, the starchy water running out into the basin below. When a considerable quantity has been accumulated in this manner, it is partially dried, and packed into coconut-leaf or sago-leaf baskets to be taken to the village, or traded to neighboring tribes. In these baskets it may be

kept a short time till used or it may be packed away into casks made of bark, leaf sheaths, or even a section of a sago trunk. These stand in a corner of the house, or under special sheds. The sago is packed down tightly, and is covered on top with leaves or pieces of leaf sheaths, weighted down with stones, and is removed as needed. It may be kept in this way several months.

Sago is cooked in a number of different ways, but it is usually made into a sort of stiff mush with boiling water. The meal is first mixed with a small amount of cold water, and boiling water is then poured in, stirring continuously until it thickens. It is then taken out with two short sticks, and served on wooden platters or bowls, or on large leaves, such as those of the breadfruit tree. As the sago alone is quite insipid, something else, such as a little fish, crabs, prawns, or even some greens, if nothing else is available, is added as a relish.

While this is the usual method of preparing sago, other methods are also used, especially when pottery is lacking. The sago meal may be cooked or roasted in bamboo tubes (Fig. 1), made into cakes and cooked over an open fire, or like waffles by means of two earthen bowls, fitting into each other. In this case both bowls are heated over a fire, and in one of these is spread a thin layer of the moistened meal. The other bowl, now hot, is placed in the first, on top of the layer of meal, which is thus heated on both sides. While this is getting properly cooked, another layer of meal is placed in the upper bowl; and when the first is done, the lower bowl is removed and placed on top of the upper one with its meal-cake, which is then cooked in its turn, and the process continued as long as more cakes are desired. The cakes are often doubled over whatever relish may be added, so as to make a sort of sandwich. In western New Guinea

an earthen or stone oven is in common use. This is a foot or more long by six to eight inches high and as many wide, with a number of rectangular openings, or holes on top, about an inch wide, in which the moist meal is placed (Fig. 2). This is then placed over the fire, and thick square or rectangular cakes are thus produced.

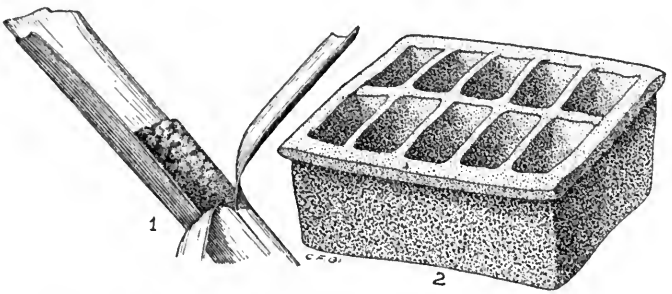

Fig. 1. Roasted sago in bamboo, broken open. Kerema district, Papua.
Fig. 2. Earthenware oven for sago cakes. Kokas, Dutch New Guinea.

This method of cooking sago, as well as the general method of obtaining the meal, does not differ greatly from those used in the Malay Archipelago, from where the use of sago was probably introduced into New Guinea. The methods, however, are usually simpler, in that the objects used, such as the washing trough, strainer, dipper, settling pan, etc., are supplied by nature from near-by objects with very little modification.

To one traveling in New Guinea with native attendants the local food supply is always a subject of interest, as one depends on that as far as possible to relieve him from the necessity of carrying extra provisions. Sago is used extensively chiefly in those districts which are more or less unsuited for the production of the ordinary garden or field crops, such as the swampy regions where the sago-palm thrives; but it also has one advantage over most garden vege-

tables, such as taro, in that it can be kept for several months, and a reserve supply of food can in this way be accumulated. This makes it suitable for trade, and for the use of such peoples as those living on the small islands of Berlin Harbor, which are too small to support gardens of any size, and are almost entirely cut off from the mainland during the rainy season because of the high winds and heavy seas. Hence these islanders depend very largely on sago, which they either purchase with the articles which they manufacture, or else make themselves by crossing over to swamps of the mainland during the dry weather. The sago thus obtained is packed away in the large casks already mentioned, for use during the rainy season. I remember, while visiting one of these islands, trying to buy a shell arm-ring which was partly finished, but which the maker and owner refused to sell on the ground that he depended on that arm-ring to furnish him with a large portion of his food for the coming rainy season. For one finished arm-ring he could buy nearly half a ton of sago, or about thirty packages or baskets of sago, each containing 25 to 30 pounds.

Probably the most extensive trading voyage occurring regularly in New Guinea is for the purpose of obtaining sago. This is the annual visit of the natives of Port Moresby and vicinity to the deltas of the large rivers entering into the Papuan Gulf, a distance of 200 miles or more. The region around Port Moresby is not particularly good for vegetable crops, so the inhabitants make these trips to obtain sago in exchange for earthen pots of various sizes, which they make in great quantities. They also carry into the gulf numbers of stone adze-blades, shell arm-rings and ornaments of various kinds, which they have obtained by trade from the eastward. Since there are no good forest trees for canoes in their

neighborhood, they also buy in the gulf the large dugouts which they use for these voyages. These dugouts (*asi*) are not used singly, but a number of them are fastened together, and a platform built over the whole so as to form a single craft, known as a *lakatoi*. Up to a dozen or even more dugouts may be used in a single *lakatoi*, which is usually supplied with two masts and crab-claw shaped sails made of mats. As they can only sail with the wind, and are too heavy to paddle, the voyage always occurs at a definite time each year. The start is made about the first of October, toward the close of the season of the southeast trade winds, but with sufficient time to reach their destination before these cease. The return voyage is made with the northwest winds, the whole time they are away being about three months. The average number of *lakatoi* making the trip each year has been about twenty, each with a crew of twenty-five to thirty men, and carrying between one and two thousand pots of various sizes. On the return voyage they are loaded with sago, each dugout (*asi*) being capable of carrying about two and a half tons, so that a *lakatoi* of 10 *asi* would bring back about 25 tons of sago all carefully done up in bundles or packages of from 40 to 80 pounds weight, each one of which has been purchased with a single pot.

In the delta country of the Papuan Gulf, where sago is made in large quantities, both for home consumption and for export, the washing troughs are usually set up along the bank of the river or water courses, and the sago trunks floated to this place before the sago is pounded out. In some places I have seen dozens of these washing troughs lining the bank of a stream. The hammers used in this region are made of two pieces of wood. The hammer proper is from 2 to 2½ feet long, and rather carefully cut out of a straight piece of wood. It is round, from 2 to 2½

inches in diameter at the bottom, and gradually tapers to a point at the upper end. The bottom is hollowed out somewhat with a sharp edge all around, as before mentioned. The handle is usually a little shorter, and may be forked or split at the upper end (Purari Delta and eastward—Fig. 5), or merely a fairly straight piece of the limb of a tree, often with the bark still on (west of Purari Delta to the Fly River—Fig. 6). The two pieces are held together at the top or angle by a ring of rattan, into which they are inserted from opposite sides, and the outer ends then pulled around so as to tighten the ring, and held in place by a piece of rattan fastened to the two parts near the base. The strainers used in the delta country are rather long, narrow, soft, tightly woven bags, measuring about 7 by 15 inches when flattened out. These were not seen at Orokolo or farther east, where the usual strainer of coconut-leaf sheath is used. On the north coast of New Guinea around Berlin Harbor and farther west, the heads of the hammers are of stone, with handles similar to those used for the stone axes and adzes of that region (Fig. 7). Stone heads are also used around Humboldt Bay, with the type of handle peculiar to that region (Fig. 8). Farther to the east on both sides of the Sepik River the hammer is of wood, much like that on the south coast, but fastened to the handle the same as the holder for the stone axe-head is fastened (Fig. 4). Sometimes in this region (at Kayan, for example) a bamboo head is used (Fig. 3). A bamboo head is also used in the Admiralty Islands. In Huon Gulf a stone head is used in the ordinary axe-handle, but here the head is larger and roughly flattened instead of cup-shaped (Fig. 9). Often a stone axe which has been broken fairly straight across is used. Hammers with rough stones are also found on the Sepik River (Fig. 10).

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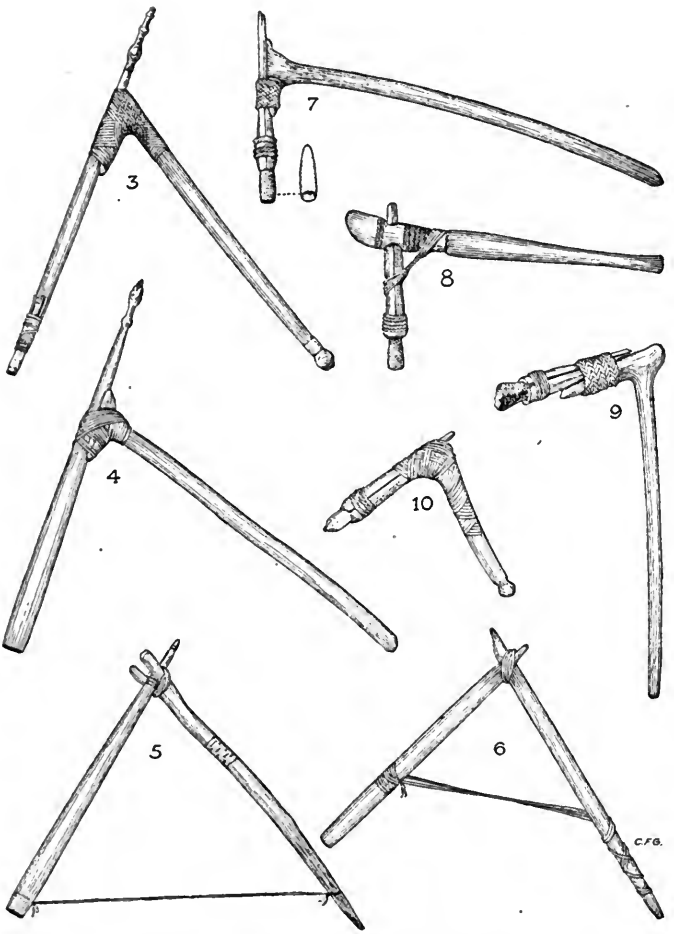

SAGO HAMMERS FROM NEW GUINEA.

Fig. 3. From Kayan, North Coast, with bamboo joint for head. Fig. 4. From Mabuk, North Coast. Fig. 5. From Papuan Gulf, South Coast. Fig. 6. From Goari Bari, South Coast. Fig. 7. From Berlin Harbor, North Coast, with separate outline of stone head. Fig. 8. From Attack Harbor, with stone head. Fig. 9. From Lokanu, Huon Gulf. Fig. 10. From Jambun, central Sepik River, with crudely chipped head of quartzite.

WASHING SAGO IN TROUGH MADE OF THE BASE OF A SAGO-PALM LEAF.
KIRAU, NORTH COAST.

COOKING SAGO CAKES BETWEEN TWO BOWLS. PILE OF COOKED CAKES AT LEFT, AND MEAL NEAR CENTER, ON PIECES OF PALM-LEAF SHEATHS.
SISSANO, NORTH COAST.